

(No Model.)

A. C. WATERHOUSE.
MAGNETO OR DYNAMO ELECTRIC MACHINE.

No. 266,235.

Patented Oct. 17, 1882.

Fig. 1.

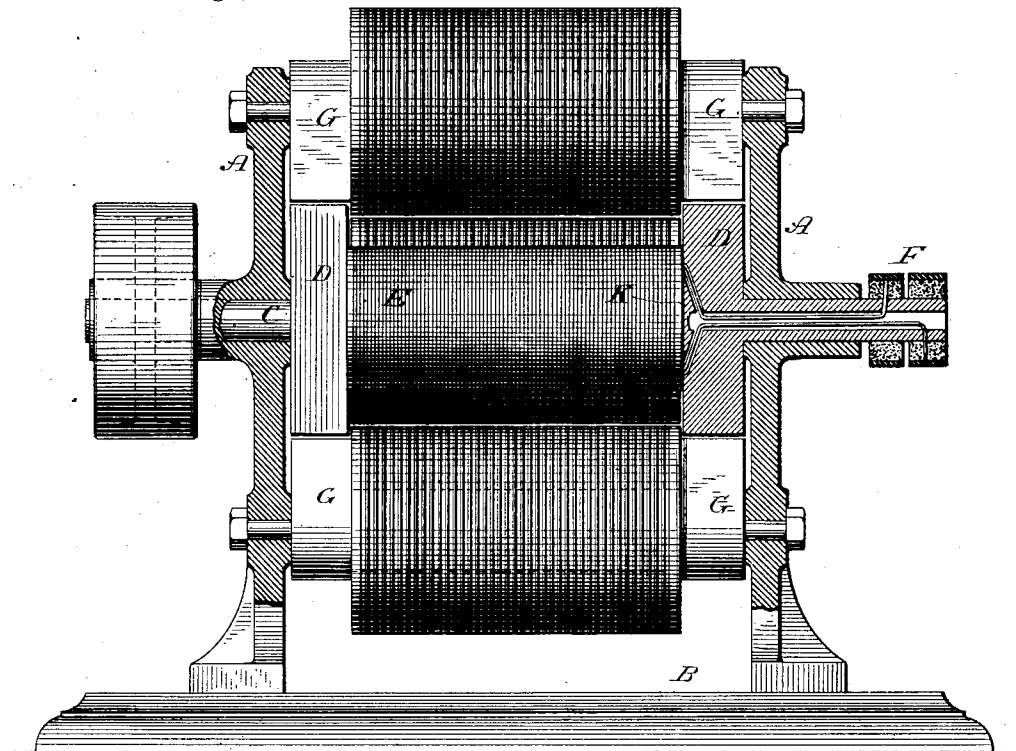
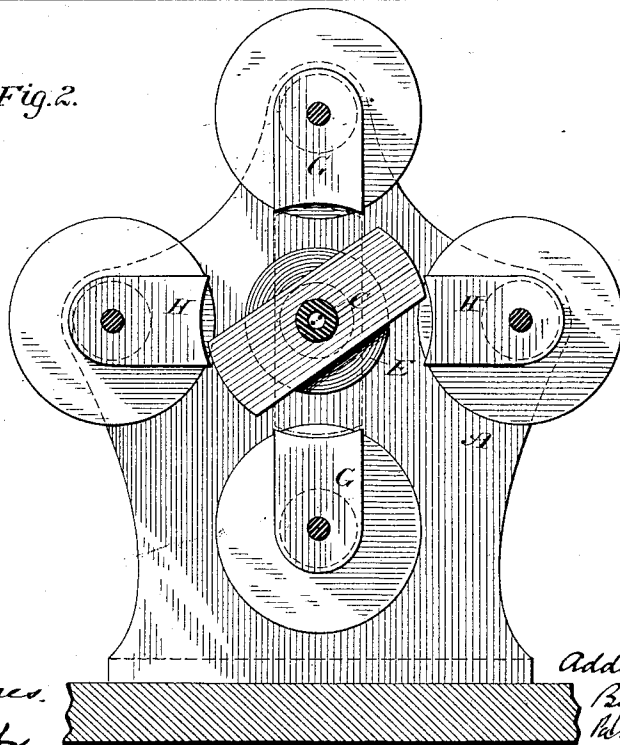


Fig. 2.



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UNITED STATES PATENT OFFICE.

ADDISON G. WATERHOUSE, OF NEW YORK, N. Y., ASSIGNOR TO THE UNITED STATES ELECTRIC LIGHTING COMPANY, OF SAME PLACE.

MAGNETO OR DYNAMO ELECTRIC MACHINE.

SPECIFICATION forming part of Letters Patent No. 266,235, dated October 17, 1882.

Application filed May 24, 1882. (No model.)

To all whom it may concern:

Be it known that I, ADDISON G. WATERHOUSE, a citizen of the United States, and a resident of New York, in the county and State of New York, have invented certain new and useful Improvements in Magneto or Dynamo Electric Machines, of which the following is a specification, reference being had to the drawings accompanying and forming a part of the same.

My present invention has reference to magneto-electric generators in which the currents produced are due to rapid reversals of magnetic polarity in a revolving armature or core surrounded by a coil or coils of insulated wire.

The improvements embraced by the invention relate mainly to a novel construction of armature, and to the arrangement of field-magnets, and are substantially as follows: For the field-magnets I employ a number—say four—of straight bar-magnets mounted in a suitable frame and having right-angled pole-pieces, the ends of which are cut away, so that their surfaces form parts of a circle. Between these field-magnets is journaled a straight core having right-angled pole-pieces and a coil of insulated wire wound upon it, the ends of which coil are connected to the segments of a commutator or collector. The pole-pieces of the armature-core are shaped in such manner as to pass closely in face of the poles of the field-magnets, and the winding of the latter is such that the polarity of the entire armature-core will be reversed by the movement of its pole-pieces from one pair of magnets to the next.

A more detailed description of the construction and principle of operation of this machine in the most practicable form of which I am at present aware will be given by the aid of the drawings, where—

Figure 1 illustrates, partly in section and partly in side elevation, a machine constructed according to the invention. Fig. 2 is an end view of the same with one side of the supporting-frame removed.

The frame in which the several parts of the machine are mounted consists of two side plates, A A, securely bolted to the base B. The said plates are provided with journals in which the armature-shaft C, which may be simply an extension of the core, is mounted. At each end

of the core K are cast or secured right-angled pole-pieces D D, the ends of which are rounded off, as shown in Fig. 2. Between these pole-pieces the coil E of insulated wire is wound, its ends carried out through the shaft C and connected to the segments of a commutator or collector, F. In the side plates, A A, are also bolted the straight cores G G H H, surrounded by coils of insulated wire connected up in series and wound in such manner that the opposite ends of any given core and the same ends of any two adjacent cores will be of opposite polarity. For this purpose it is evident that the number of pairs of cores must be a multiple of two.

The operation of the machine is similar in principle to that of other well-known forms of magneto-induction machines. The field-magnets are excited either by the machine itself or by an independent source of current, the necessary reversals of polarity in the core being effected by the movement of the pole-pieces D D from one pair of magnets, as G G, to the next, as H H.

The special advantages following from the construction described are that the power required to drive the machine is greatly reduced, and the bobbin or coil of the armature is in a position relatively to the core where it produces the maximum induced effects.

It may be stated that the armature-coil may be of fine or coarse wire, according to the requirements of the machine, and also that a commutator which takes off a direct current, or a simple collector taking off alternating currents, may be employed.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a magneto or dynamo electric machine, the combination, with straight field-magnet cores disposed in a circle, of a revolving armature consisting of a core wound with insulated wire and provided with right-angled pole-pieces which rotate in proximity to the ends of the field-magnets, as set forth.

2. The combination, with straight field-magnets mounted in a circle in a supporting-frame, of a soft-iron core mounted in line with said magnets, right-angled pole-pieces secured to or integral with the said core, a coil of insulated

wire wound around said core, and a commutator or collector, to which the ends of the coil are connected, these parts being constructed and combined to form a magneto or dynamo machine in which the currents are produced by rapid reversals of the magnetic polarity of the core, as set forth.

3. The combination of a supporting-frame, straight field-magnets mounted in a circle in said frame and provided with right-angled pole-pieces, a revolving core mounted in the

frame in the center of the group of field-magnets, a coil of insulated wire wound around said core, and pole-pieces arranged to rotate before the faces of the poles of the field-magnets, substantially in the manner described. 15

In testimony whereof I have hereunto set my hand this 16th day of May, 1882.

ADDISON G. WATERHOUSE.

Witnesses:

W. FRISBY,
PARKER W. PAGE.